

USDA-ARS NC-7 Regional Woody Ornamental Trials Horticulture Project

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HISTORY

Unique to the horticulture project are the NC-7 Regional Ornamental Plant Trials, which began in 1954 through the efforts of a small group of dedicated horticulturists under the leadership of Professor S.A. McCrory of South Dakota State College (now University). The trials are one of the longest running evaluation networks for landscape plants in the U.S.

ORGANIZATION

Each year, five to ten promising, new trees and shrubs are offered for testing to approximately 30 trial sites across 18 states (Figures 1 and 2). Plants selected for trial are acquired through plant explorations, seed or other propagule exchange, or direct donations from other institutions. Factors influencing plant selection include assessments of hardiness and aesthetics, ease of propagation and culture, naturalization potential, and specific interests of trial site cooperators.

Figure 1. North Central United States Trial Sites



Figure 2. Alaska Trial Site Locations



Figure 3. Ten Year Performance Report.

NC-7 WOODY ORNAMENTAL TRIALS									
TEN YEAR PERFORMANCE REPORT									
COPIES	NAME	LOT NO.	DATE	PLANTING DATE	PLANTING DATE	PLANTING DATE	PLANTING DATE	PLANTING DATE	PLANTING DATE
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
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98	98	98	98	98	98	98	98	98	98
99	99	99	99	99	99	99	99	99	99
100	100	100	100	100	100	100	100	100	100

REPORTS

Once established, plants are observed and evaluated throughout the seasons at one, five, and ten years after planting (Figure 3). Evaluation data are sent to the NCRPIS to examine trends and summarize performance. The evaluation data are currently being entered onto the Internet.

The NC-7 Trials website contains a list of accessions evaluated from 1984 to the present, completed 10-year evaluation data for plants offered since 1984, plant descriptions, performance summaries, and when available, images of accessions. The website also contains a list of cooperators with links to their homepages. The site can be accessed on the Internet at <http://www.ars.usda.gov/Business/Business.htm?modecode=36-25-12-00>

PURPOSE

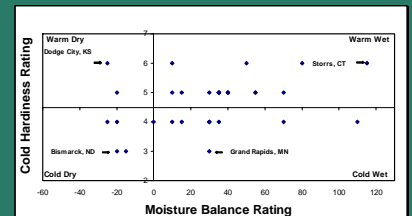
There are many factors that influence plant performance both biologically and environmentally. Biologically, plants may vary in susceptibility to insects and/or disease (Figure 4) due to genetics and/or environmental conditions. Environmentally, plants may or may not establish in extreme cold or hot temperatures or succumb to prolonged dry or wet soil conditions. As an example, an accession growing in area with warm winters and high moisture availability (Storrs, CT) may flourish as opposed to a site that typically experiences very cold winters and a low moisture availability (Bismarck, ND) (Figure 5).

Figure 4. Dogwood Leafspot (*Septoria* sp.)



Presence and degree of infection is more severe at trial sites that have higher humidities

Figure 5. Trial Sites Moisture Balance and Cold Hardiness Ratings



In addition, plant performance can also be attributed to day-length and soil pH. Due to the climatic extremes experienced across the north central United States, the diversity found in commercially available woody plants adapted to the area is less than that found in most other parts of our nation. Therefore, the goal of the NC-7 Regional Ornamental Plant Trials is to:

- Utilize multiple trial sites across a broad range of environments and climatic extremes
- Place emphasis on detailed, long-term evaluations
- Expand the range of useful woody ornamental plants

IMPACT

- Better assessment of plant performance across various sites before marketing
- Increased awareness of plant diversity and adaptability for nurserymen, extension agents, and homeowners
- Increased diversity of well-adapted landscape plants reduces the potential for large-scale pest outbreaks and is more aesthetically appealing
- Reduction in losses through improved matching of landscape plants with corresponding site conditions
- Breeders are able to better utilize genetic material with desired, ornamental characteristics adapted to their location